

**IN THE CLAIMS:**

- 1     1.     A transponder for an RFID system, comprising:
  - 2                    a)     a substrate including RF receiving and transmitting means;
  - 3                    b)     data storage means storing packetized data in data formats
  - 4                    transportable in the Internet; and
  - 5                    c)     identifying code in the format identifying the data format.
  
- 1     2.     The transponder of Claim 1 further comprising:
  - 2                    d)     signal means responsive to an activation signal for transmitting or
  - 3                    receiving and storing packetized data.
  
- 1     3.     The transponder of Claim 2 wherein the data formats are UDP and IP, alone
- 2                    or in combination.
  
- 1     4.     The transponder of Claim 2 wherein the packetized data is at least partly
- 2                    compressed.

1           5.     A mobile device in a RFID system, comprising:

2                   a)     signal apparatus transmitting activation signals and sending/receiving  
3     packetized datagrams transportable in the Internet to/from at least one transponder;

4                   b)     a communication protocol stack processing and routing packetized  
5     datagrams within the device or to a network;

6                   c)     stored programs operating the device in the RFID system and  
7     implementing communications with a network; and

8                   d)     reading apparatus processing packetized datagrams from a transponder.

1           6.     The mobile device of Claim 5 further comprising:

2                   e)     at least one application stored in the device and responsive to the  
3     packetized data.

1           7.     The mobile device of Claim 5 wherein the packetized datagram is in UDP or IP or  
2     combined UDP/IP format including a header with at least partly compressed or shortened or  
3     omitted fields.

1           8.     The mobile device of claim 6 further comprising:

2                   f)     header processing means decompressing or expanding or providing  
3     omitted fields in the datagram.

1           9.     The mobile device of Claim 8 further comprising:

2                   g)     parsing means processing datagrams for transmission to the network.

1           10.    The mobile device of Claim 7, wherein the packetized datagrams are at least  
2     partly compressed.

1           11.    A RFID system, comprising:

2                   a)     a transponder containing packetized datagrams in data formats  
3     transportable in the network and responsive to activation signal;

4                   b)     a mobile terminal generating the activation signals and sending/receiving  
5     the packetized datagrams to/from the transponder;

6                   c)     a communication protocol stack stored in the mobile terminal  
7     processing and routing the datagrams;

8                   d)     a network linked to the terminal receiving and transmitting the  
9                   packetized datagrams; and  
  
10                  e)     a reader in the terminal processing the packetized datagrams transmitted  
11                  from the transponder.

1                  12.     The RFID system of Claim 11 wherein the reader is located in the network.

1                  13.     The RFID system of Claim 11 wherein the communication protocol stack checks  
2                  a checksum in the packetized datagram against the packet contents and notifies the reader the  
3                  transmission has failed if the checksum is not valid.

1                  14.     The RFID system of Claim 13 wherein the communication protocol stack requests  
2                  a re-transmission from the transponder if the checksum is not valid.

1                  15.     The RFID system of Claim 13 wherein the communication protocol stack drops  
2                  the packetized datagram or notifies an application running in the terminal if the re-transmission  
3                  is unsuccessful.

1           16.     The RFID system of Claim 13 wherein the communication protocol stack  
2 transmits the packetized datagram to an application running in the terminal or to an application  
3 running in the network.

1           17.     The RFID system of Claim 13 wherein the communication protocol stack parses a  
2 header in the packetized datagram and routes the packetized datagram to a destination identified  
3 in the header if a checksum in the packetized datagram is valid.

1           18.     The RFID system of Claim 13, wherein the packetized datagrams are at least  
2 partly compressed.

1           19.     A method for routing packetized data between a data carrier and destination  
2 address comprising:

- 3           a)     receiving and sending a data packet from and to the data carrier;
- 4           b)     identifying a format of the data packet;
- 5           c)     processing the data packet according to the identified format; and
- 6           d)     routing the processed data packet to a destination address.

1           20.     The method according to claim 19, wherein the data packet comprises an  
2 identification data, a header data and a payload data.

1           21.     The method according to claim 19 wherein the data packet without identification  
2     data is transportable in the Internet.

1           22.     The method according to claim 19, wherein the data carrier is an RFID tag.

1           23.     The method according to claim 19, wherein the destination address is an internet  
2     address (IP address) or an IP protocol port or both.

1           24.     The method according to claim 20, wherein the header data is UDP header data.

1           25.     The method according to claim 20, wherein the header data is at least partly in  
2     compressed form.

1           26.     The method according to claim 25, wherein the processing comprises  
2     decompressing the received header data.

1           27.     The method according to claim 20 wherein the payload data is at least partly in  
2     compressed form.

1           28.     The method according to claim 20 wherein the payload data is in uncompressed  
2     form.

1           29.     The method according to claim 20 wherein the header data is standard IP protocol  
2     packet header data.

1           30.     The method according to claim 19 wherein the routed packets can be directed to  
2     a network or an application within the device.

1           31.     The method according to claim 19, wherein the network can be an external  
2     network (e.g. the Internet) or a local network (such as a personal area network, or a local area  
3     network).

1           32.     A method for writing a packetized data to a data carrier, where the data carrier is  
2     an RFID tag.

1           33.     A system for routing packetized data comprising:  
2                   a)     at least one data carrier having at least one data packet embedded therein;  
3                   b)     a data receiving (reading) device or data sending (writing) device for  
4     receiving or sending the at least one embedded data packet from the said at least one data carrier;  
5                   c)     a data routing device connectable to the data receiving device for routing  
6     the received data packet to a destination address; An application receiving the routed data packet.

1           34.     A system of Claim 33, wherein the at least one data packet is at least partly  
2     compressed.

1           35.    A system of Claim 33, wherein the at least one data packet is transportable in the  
2 Internet.

1           36.    A medium, executable in a computer system, for routing packetized data between  
2 a data carrier and destination address, the medium comprising:

3                   a)    program code for receiving and sending a data packet from and to the data  
4 carrier;

5                   b)    program code for identifying a format of the data packet;

6                   c)    program code for processing the data packet according to the identified  
7 format; and

8                   d)    program code for routing the processed data packet to a destination  
9 address.